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Sporidesmiella lushanensis and *S. jiulianshanensis* spp. nov. and a new record from China

Jian Ma*

College of Agronomy, Jiangxi Agricultural University, Nanchang, 330045, China

*Correspondence to: *majian821210@163.com*

Abstract—Three species of *Sporidesmiella* were collected on dead branches from subtropical forests in southern China. *Sporidesmiella lushanensis* is described as a new species easily distinguished by its verrucose conidiophores and percurrently extending conidiogenous cells that produce clavate to cuneiform 3–5-distoseptate conidia with an obviously thickened dark basal hilum. The new *Sporidesmiella jiulianshanensis* is distinguished from other *Sporidesmiella* species by its ovoid to ellipsoidal smooth conidia with 2 distosepta above and 1 euseptum below. *Sporidesmiella garciniae* var. *brasiliensis* is recorded for the first time from China. These species are described, illustrated, and compared with similar taxa.

Key words—anamorphic fungi, asexual morph, hyphomycetes, taxonomy

Introduction

Most of southern China has a humid subtropical climate conducive to fungal growth, but the anamorphic fungi occurring on plant debris are poorly known (e.g., Zhang et al. 2009, 2010; Ma et al. 2011, 2012, 2014a,b, 2015; Ren et al. 2012; Xia et al. 2013). During our continuing surveys (2012–15) of saprobic microfungi from the forests of southern China, three species referable to the genus *Sporidesmiella* P.M. Kirk (Kirk 1982) were collected on dead branches. Two are new to science while the third represents a new record for China. Specimens are conserved in the Herbarium of the Department of Plant Pathology, Jiangxi Agricultural University, Nanchang, China (HJAUP).

Sporidesmiella lushanensis Jian Ma, **sp. nov.** Fig. 1

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Differs from *Sporidesmiella sinensis* by its verrucose conidiophores and its wider conidia with more numerous septa.

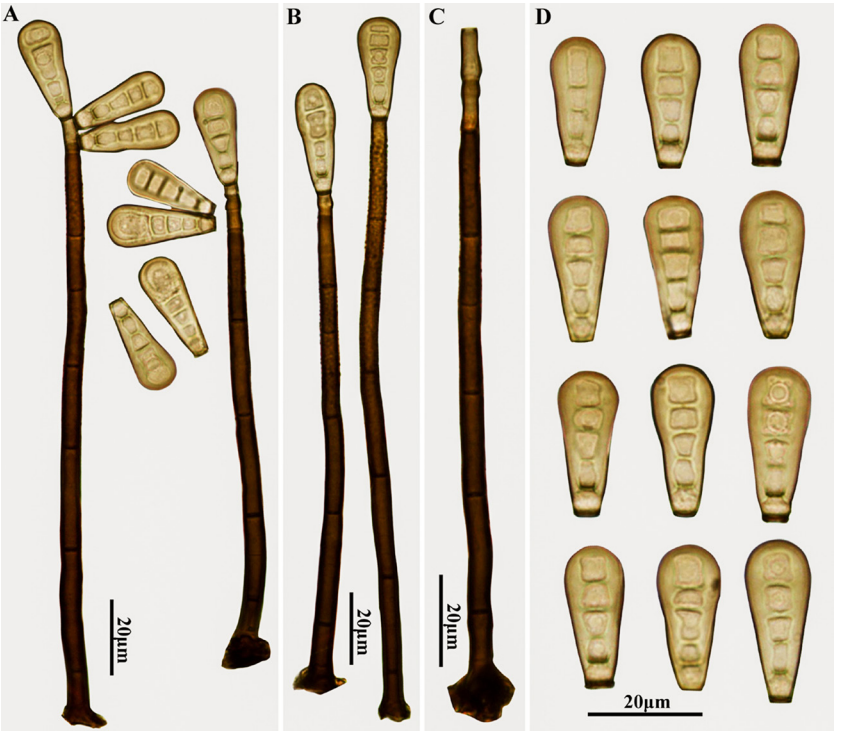

Fig. 1. *Sporidesmiella lushanensis* (holotype, HJAUP M0239). A, B. Conidiophores, conidiogenous cells, and conidia; C. Conidiophore; D. Conidia.

Type: China, Jiangxi Province, Lushan Mountain, on dead branches of an unidentified broadleaf tree, 8 November 2014, J. Ma (**holotype**, HJAUP M0239).

Etymology: refers to the locality where the type specimen was found.

Colonies effuse on the natural substratum, brown, hairy. Mycelium partly superficial, partly immersed in the substratum, composed of branched, septate, pale brown to brown, smooth-walled hyphae. Conidiophores differentiated, single, unbranched, erect, straight or flexuous, septate, verrucose, dark brown to brown, 120–170 μm long, 5–6 μm wide. Conidiogenous cells integrated, terminal, cylindrical, verrucose, brown to pale brown, with several enteroblastic percurrent extensions. Conidial secession schizolytic. Conidia holoblastic, acrogenous, solitary, dry, clavate to cuneiform, pale brown, smooth-walled, 3–5-distoseptate (usually 4), 22–31 μm long, 9.5–12 μm wide in the broadest part, base truncate and 3–4.5 μm wide, apex rounded.

Table 1. Comparisons of setae, conidiophores, and proliferation in *Sporidesmiella lushanensis* and similar species*

Species	Setae	Conidiophores	Conidiogenous cell proliferation
S. claviformis[1]	–	Smooth	Percurrent
S. latispora[2]	–	Smooth	Percurrent
S. lushanensis	**–**	**Verrucose**	**Percurrent**
S. rosae[3]	–	Verruculose	Percurrent or sympodial
S. setosa[4]	+	Smooth	Percurrent
S. sinensis[3]	–	Smooth	Percurrent

*Data from: [1] Kirk (1982); [2] Wu & Zhuang (2005); [3] Ma et al. (2012); [4] McKemy & Wang (1996)

Comments – *Sporidesmiella lushanensis* resembles *S. claviformis* P.M. Kirk, *S. latispora* W.P. Wu, *S. rosae* Jian Ma & X.G. Zhang, *S. setosa* McKemy & C.J.K. Wang, and *S. sinensis* W.P. Wu in general conidial shape. However, *S. claviformis* can be distinguished by its smooth conidiophores and smaller conidia with fewer septa; *S. latispora* differs by its smooth conidiophores and wider conidia; *S. rosae* differs by its more numerous conidial septa and some sympodial proliferation of conidiogenous cells; *S. setosa* differs by its smooth conidiophores, longer narrower conidia, and conspicuous setae; and *S. sinensis* differs by its smooth conidiophores and narrower conidia with fewer septa (Tables 1, 2).

Table 2. Comparisons of conidia in *Sporidesmiella lushanensis* and similar species*

Species	Shape	Size (μm)	Septa	Basal width (μm)
S. claviformis[1]	Clavate	14–20 × 4.5–9	2	2–2.5
S. latispora[2]	Clavate– obovoid	25–30 × 13.5–17	4	5–6
S. lushanensis	**Clavate– cuneiform**	**22–31 × 9.5–12**	**(3–)4(–5)**	**3–4.5**
S. rosae[3]	Clavate	23–28 × 7–10	(4–)5–6(–7)	2.5–3.5
S. setosa[4]	Cuneiform	30–38 × 7.5–9	4–5	3.5–5
S. sinensis[3]	Clavate– cuneiform	24–26 × 7.5–9	3	4

*Data from: [1] Kirk (1982); [2] Wu & Zhuang (2005); [3] Ma et al. (2012); [4] McKemy & Wang (1996)

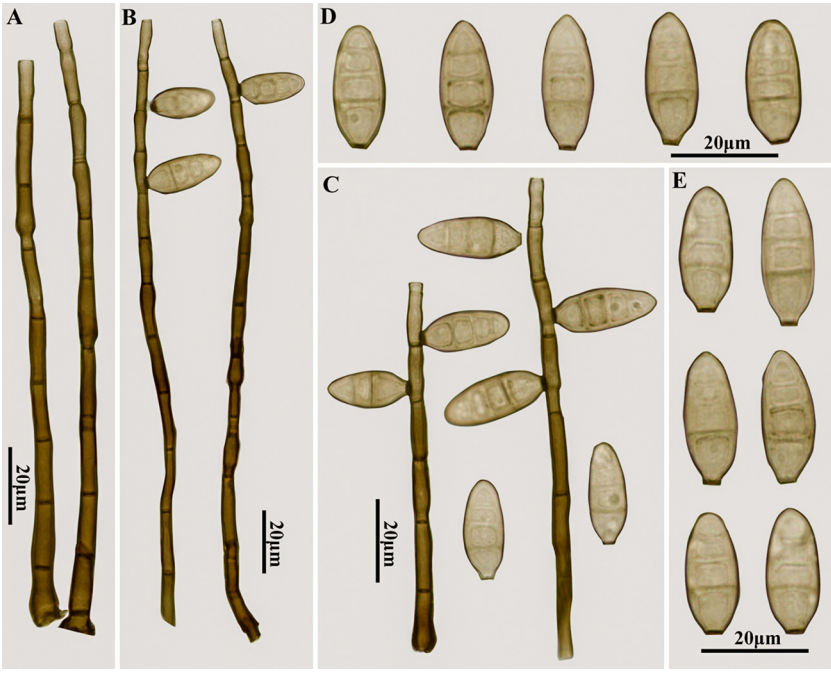

Fig. 2. *Sporidesmiella jiulianshanensis* (holotype, HJAUP M0313). A. Conidiophores showing conidiogenous cells and percurrent extensions; B, C. Conidiophores and conidia; D, E. Conidia.

Sporidesmiella jiulianshanensis Jian Ma, **sp. nov.** Fig. 2

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Differs from all other *Sporidesmiella* species by its ovoid to ellipsoidal conidia with both eusepta and distosepta.

Type: China, Jiangxi Province, Jiulianshan National Nature Reserve, on dead branches of an unidentified broadleaf tree, 3 November 2014, J. Ma (**holotype**, HJAUP M0313).

Etymology: refers to the locality where the type specimen was found.

Colonies effuse on the natural substratum, brown, hairy. Mycelium partly superficial, partly immersed in the substratum, composed of branched, septate, pale brown to brown, smooth-walled hyphae. Conidiophores differentiated, single, unbranched, erect, straight or flexuous, septate, smooth, brown to dark brown, 90–205 × 4.5–6 μm with up to 5 or more percurrent extensions. Conidiogenous cells integrated, terminal, cylindrical, brown to pale brown. Conidial secession schizolytic. Conidia holoblastic, acrogenous, solitary, dry, ovoid to ellipsoidal, brown to pale brown, smooth-walled, 2-distoseptate above and 1-euseptate below, 21–28 μm long, 9.5–10.5 μm wide in the broadest part, apex rounded, base truncate and 2.5–3.5 μm wide.

Comments – *Sporidesmiella cuneiformis* (B. Sutton) P.M. Kirk is the only other species that produces conidia with both eusepta and distosepta. However, *S. cuneiformis* has clavate to cuneiform or obovoid, narrower (6–9.5 µm) conidia with (4–)5 distosepta above and 2 eusepta below (Kirk 1982). *Sporidesmiella jiulianshanensis* produces somewhat similarly shaped conidia as *S. brachysporioides* T.Y. Zhang & W.B. Kendr., which differs by its slightly larger conidia (15–35 × 7.5–13 µm) with 3–4(–5) distosepta (Zhang et al. 1983).

Sporidesmiella garciniae var. ***brasiliensis*** Santa Izabel & Gusmão, Mycosphere 4(2): 158, 2013. Fig. 3

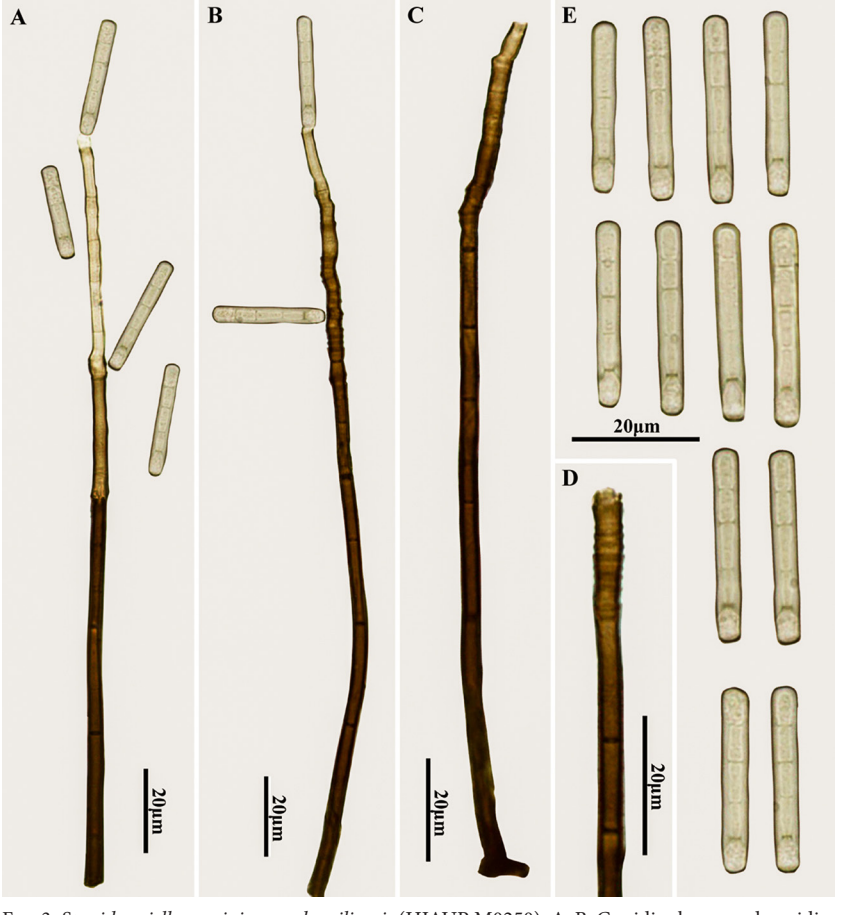

Fig. 3. *Sporidesmiella garciniae* var. *brasiliensis* (HJAUP M0250). A, B. Conidiophores and conidia, with conidiophore apices showing both sympodial and percurrent extensions; C, D. Conidiophores and conidiogenous cells; E. Conidia.

Conidiophores differentiated, single, unbranched, smooth, brown to dark brown, paler at the apex, 140–190 × 3.5–4.5 µm. Conidiogenous cells integrated, terminal, cylindrical, brown to pale brown or subhyaline, with up to 12 or more enteroblastic percurrent extensions, sometimes also with sympodial extensions. Conidial secession schizolytic. Conidia solitary, dry, cylindrical to subcylindrical, smooth, 4-distoseptate, light brown, 22–31 × 3.5–4.5 µm, base truncate and 1.5–2 µm wide, apex rounded.

Specimen examined: **China**, **Jiangxi Province**, Lushan Mountain, on dead branches of an unidentified broadleaf tree, 8 November 2014, J. Ma (HJAUP M0250).

Comments – *Sporidesmiella garciniae* var. *brasiliensis,* which was originally described from Brazil (Santa Izabel et al. 2013), has not been previously recorded in China. It is closely related to *S. garciniae* Matsush. var. *garciniae* in conidial shape but differs in having conidiogenous cells with sympodial extensions. Our collection corresponds well with the original description of the Brazilian variety, except that the holotype had slightly narrower conidia (2.5–4 µm) and shorter conidiophores (32–106 µm; Santa Izabel et al. 2013).

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